

National Marine Sanctuaries
National Oceanic and Atmospheric Administration
FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY



FLOWER GARDEN BANKS DRAFT ENVIRONMENTAL ASSESSMENT



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This document presents the programmatic environmental assessment of the Flower Garden Banks National Marine Sanctuary (FGBNMS) Draft Management Plan¹. It is a useful tool to understand the environmental consequences of the broad range of activities proposed under the draft management plan and provides the general analyses to inform the decision of approving the plan. It also establishes that as individual actions become ripe for decision, alternatives will be evaluated under the National Environmental Policy Act (NEPA) to meet the broader goals outlined in this draft management plan.

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Purpose and Need for Action

The National Oceanic and Atmospheric Administration (NOAA) Office of National Marine Sanctuaries (ONMS) proposes to revise the current Flower Garden Banks National Marine Sanctuary (FGBNMS or sanctuary) management plan and to implement changes to the FGBNMS regulations. The purpose and need for the proposed action are based on both the statutory requirements of the National Marine Sanctuaries Act (NMSA) and the need to address current management issues and concerns of the sanctuary.

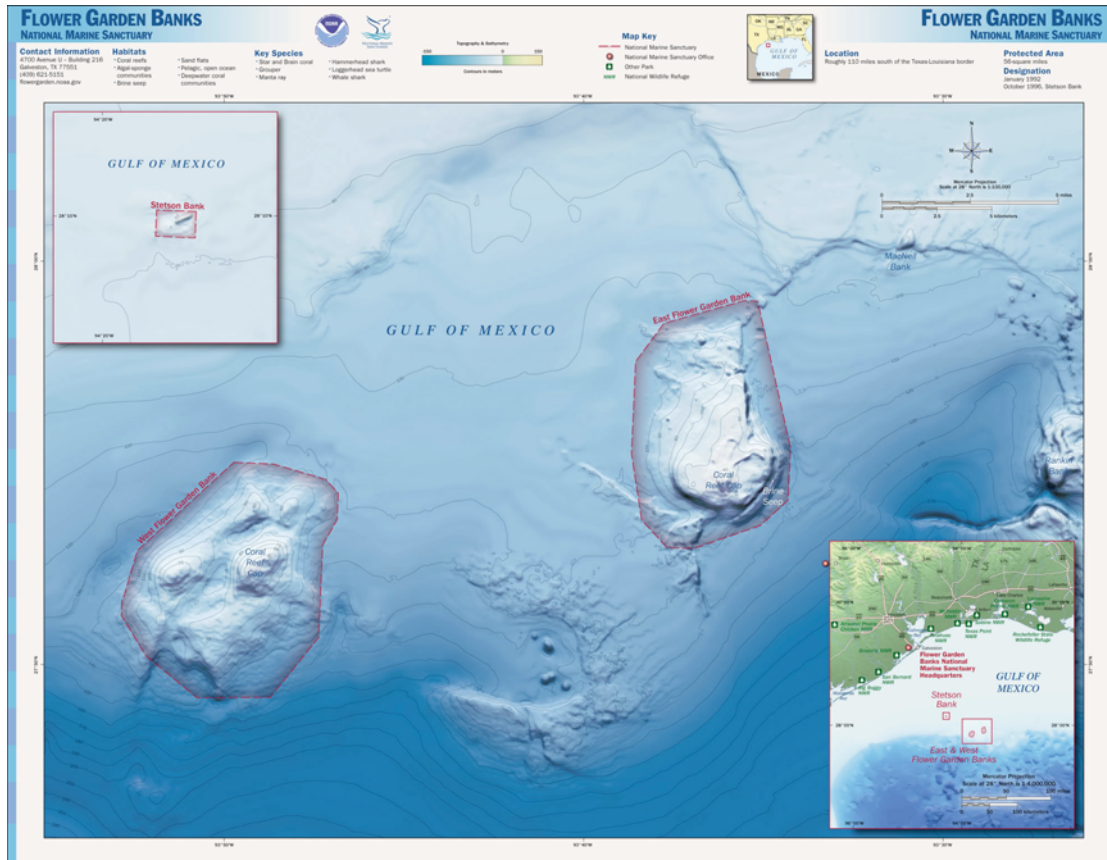


Figure 1: Flower Garden Banks National Marine Sanctuary

1.1 Purpose for Taking Action

The National Marine Sanctuaries Act

The NMSA (16 U.S.C. § 1431 et seq.) is the legislative mandate that governs the ONMS and the National Marine Sanctuary System. Under the NMSA, the Secretary of Commerce is authorized to designate and manage areas of the marine environment as national marine sanctuaries. Such designation is based on attributes of special national significance, including conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or aesthetic qualities. With the primary mandate to provide protection for the resources of these special ocean and Great Lakes areas, the NMSA identifies nine purposes and policies:

- (1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance and to manage these areas as the National Marine Sanctuary System;
- (2) to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner that complements existing regulatory authorities;
- (3) to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations and ecological processes;
- (4) to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural and archeological resources of the National Marine Sanctuary System;
- (5) to support, promote and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas;
- (6) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;
- (7) to develop and implement coordinated plans for the protection and management of these areas with appropriate federal agencies, state and local governments, Native American tribes and organizations, international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;
- (8) to create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and
- (9) to cooperate with global programs encouraging conservation of marine resources.

The NMSA also states that the ONMS shall “maintain for future generations the habitat and ecological services of the natural assemblage of living resources that inhabit [sanctuaries]” (16 U.S.C. 1431 et seq., §301(a)(4)(A),(C)). The NMSA further recognizes that “while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of the marine environment” (16 U.S.C. 1431 et seq., §301(a)(3)). Accordingly, the ONMS subscribes to a broad and comprehensive management approach to meet the NMSA’s primary mandate of resource protection. This approach differs from that of various other national and local agencies and laws directed at managing single or limited numbers of species, habitats, or specific human activities within the marine environment.

Sanctuary management, therefore, serves as a framework for providing long-term protection of a wide range of living and non-living marine resources, while allowing multiple uses of the sanctuary to the extent that they are compatible with resource protection. The ecosystems managed by the ONMS span diverse geographic, administrative, political and economic boundaries. Strong partnerships between the ONMS and resource management agencies, the scientific community, stakeholders and the public at-large are needed to realize the coordination and program integration that the NMSA calls for in order to comprehensively manage national marine sanctuaries, individually and as a system.

Flower Garden Banks National Marine Sanctuary

Located in the northwestern Gulf of Mexico, 70 to 115 miles off the coasts of Texas and Louisiana, FGBNMS includes three separate undersea features: East Flower Garden Bank, West Flower Garden Bank and Stetson Bank. The banks range in depth from 55 feet to nearly 500 feet and are basically underwater hills formed by rising domes of ancient salt. They provide a wide range of habitat conditions that support a variety of species and several distinct biological communities, including the northernmost coral reefs in the continental United States. The combination of location and geology makes FGBNMS extremely productive and diverse and presents a unique set of challenges for managing and protecting its natural wonders.

The sanctuary was designated in 1992 for the purposes of protecting and managing the conservation, ecological, recreational, research, education, historic and aesthetic resources and qualities of the Flower Garden Banks (56 FR 63634). NOAA issued final regulations and released a final management plan and environmental impact statement (EIS) to implement this designation. In 1996, Congress added the coral sponge communities of Stetson Bank to the sanctuary, extending to it the regulatory protections of the Flower Garden Banks. The sanctuary's management plan is a comprehensive approach to resource protection and management; it includes programs for science, education, outreach, regulation, enforcement, permitting and coordination with other local, state, and federal agencies.

Management Plan Review

New challenges and opportunities emerge with time. For this reason, section 304(e) of the NMSA requires periodic updating of sanctuary management plans to re-evaluate site-specific goals and objectives and to develop management strategies and activities to ensure the sanctuary best protects its resources. Revision of existing regulations or development of new regulations as part of the management plan review (MPR) process may be necessary to meet the sanctuary goals and objectives and the purposes and policies of the NMSA.

The MPR process includes five fundamental steps:

- 1) Public scoping to identify the broad range of issues and concerns related to management of the sanctuary;
- 2) Analysis and prioritization of the issues raised during scoping;
- 3) Preparation of the draft management plan and relevant environmental analysis;

- 4) Public comment on the draft plan and environmental analysis; and
- 5) Revision and preparation of the final management plan and environmental analysis.

In preparation for a review of this management plan, the sanctuary staff worked with the sanctuary advisory council to update the sanctuary goals and objectives and create a mission statement.

Mission: Identify, protect, conserve, and enhance the natural and cultural resources, values, and qualities of Flower Garden Banks National Marine Sanctuary and its regional environment for this and future generations.

Goal 1: Protect, maintain and, where appropriate, restore and enhance the resources and qualities of Flower Garden Banks National Marine Sanctuary and the ecosystem that supports it.

Goal 2: Support, promote, and coordinate characterization, research, and monitoring of FGBNMS and the regional environment to inform conservation and protection.

Goal 3: Enhance and foster public awareness, understanding, appreciation, and stewardship of FGBNMS and the regional marine environment.

Goal 4: Manage and facilitate multiple sustainable uses of FGBNMS compatible with the primary purpose of resource protection.

Goal 5: Promote and coordinate partnerships with stakeholders, agencies, and organizations.

Goal 6: Promote ecosystem-based management of the FGBNMS regional environment.

1.2 Need for Action

The MPR for FGBNMS began in October 2006 with the publication of the State of the Sanctuary Report and the initiation of public scoping through three public meetings (Houston/Galveston and Corpus Christi, Texas and New Orleans, Louisiana). The meetings were announced in the *Federal Register* and through various newspapers. More than 50 people attended the public scoping meetings and over 80 written comments were collected. Comment topics included artificial reefs, endangered species, enforcement, harvesting, oil and gas infrastructure, pollutant discharge, regional water quality, shipping and transportation, visitor use, wildlife interactions, boundary expansion, habitat connectivity, invasive species, education, global warming, hurricanes and administrative issues. Fishing, boundary expansion, and public outreach and education received more comments than other topics.

During the scoping phase of management plan review, FGBNMS staff collected and summarized input from the public on potential resource protection and management

issues to be addressed in the revised management plan and regulations. Through the winter of 2006, sanctuary and headquarters staff worked with the FGBNMS advisory council to characterize and prioritize resource protection issues for the focus of the revised management plan. At the February 2007 sanctuary advisory council meeting, six subcommittees were established to analyze the specific priority issues and to propose appropriate management strategies and activities needed to address the issue areas. Each subcommittee consisted of several council members and a supporting sanctuary staff member. Throughout 2007, several subcommittee and advisory council meetings and public workshops resulted in management recommendations to the sanctuary superintendent.

Sanctuary staff used the recommendations from the council to help inform the action plans in the preparation of a draft management plan. New information about the resources of the sanctuary and the human uses of the resources made it apparent to NOAA that the original plan is out-of-date and outmoded. The MPR process also revealed that many of the activities of the 1992 management plan had been completed. NOAA decided to incorporate this new knowledge and, consequently, developed a new FGBNMS mission and statement of goals and objectives to guide management. In addition, NOAA has revised the content and format of the sanctuary management plan and developed a proposed rule to implement some of the activities identified in the plan. The draft plan, proposed rule and environmental assessment are the result of the MPR process. Formal public hearings and comments on the draft plan will help staff revise the document into a final management plan and final rule, which, once approved, would outline the sanctuary's priorities for the next 5 years.

Scope of the Issues

Taking into consideration the advice and recommendations from the FGBNMS advisory council, sanctuary staff identified six priority issues: regional habitat protection (sanctuary expansion), education and outreach, enforcement, fishing impacts, pollutant discharge, and visitor use. These issues have been addressed in the development of the action plans as part of the draft revised management plan and are summarized below.

Sanctuary Expansion

Numerous banks and associated topographic features in the northwestern Gulf of Mexico, like the Flower Garden Banks, have unique or unusual structural features, and may be ecologically linked to each other. Many of these geological and biological features exist outside current sanctuary boundaries. Additional features were revealed through the collection of high-resolution multi-beam bathymetry after the present sanctuary boundaries were established. These features may be highly vulnerable to certain anthropogenic impacts that alter the physical, chemical, biological, or acoustic environment. The draft management plan proposes to evaluate selected features for possible management and protection by ONMS as part of Flower Garden Banks National Marine Sanctuary.

Education and Outreach

The level of awareness, understanding and appreciation of FGBNMS varies greatly among users and other members of the public. In many cases, this is inadequate to produce changes in individual attitudes, behaviors and/or community decision-making processes that affect the health of sanctuary resources. The progress made in addressing recreational divers and K-12 educators and students needs to be sustained while developing programs that target other direct users of the sanctuary, as well as increasing general public awareness and visibility of the sanctuary. For instance, the education and outreach team will develop a concept and implementation plan for a Flower Garden Banks National Marine Sanctuary visitor center in Galveston, Texas. A visitor center would provide a physical location where people can experience the wonders of the sanctuary virtually, especially since a majority of citizens will never visit the sanctuary in person.

Research and Monitoring

Science in FGBNMS plays a vital role in making informed resource management decisions. This scientific knowledge base is gained through general exploration and habitat characterization, investigations of specific research questions, and routine monitoring of resource health. Information gathered by the sanctuary science team and its partners is essential for expanding upon existing baseline data, comparing existing habitat conditions with past conditions, and targeting the most important management issues.

In order to determine the impacts of fishing and diving on sanctuary resources, a process to evaluate the need and design for a research area was proposed during the management plan review. The implementation of this process would build on several workshops and the development of a research area working group, and would include input from members of the sanctuary advisory council, scientists, fishers, divers and constituents from other user groups.

Resource Protection

Diving Impacts

Potential impacts on sanctuary resources from visitation by SCUBA divers are an ongoing concern. Anecdotally, divers have noted damage to the coral reef likely caused by recreational and research divers. Additionally, some marine animals such as rays and Whale Sharks may be negatively affected by interactions with divers who attempt to attract and touch the animals. Sanctuary staff lack quantitative information on direct and indirect human impacts to sanctuary resources from diving activities, and specifically, on whether there are any differences between impacts from recreational diving activities and scientific diving activities. The collection of information on diving impacts is addressed in the Research and Monitoring Action Plan, while the outreach program to inform divers about wildlife interactions is an activity in the Education and Outreach Action Plan.

Enforcement

Enforcement is logistically difficult due to the distance of FGBNMS from shore and limited access to the site. Using the sanctuary's vessel, R/V *Manta*, sanctuary staff will be able to increase enforcement presence on the water. Additionally, FGBNMS staff are developing a voluntary incident reporting system and seek to improve enforcement coordination with other agencies.

Fishing Impacts

Fishing activities may negatively affect and threaten the natural living resources of FGBNMS. The influence of fishing activities within the sanctuary is not well documented, but concerns exist about both direct and indirect fishing-related impacts on marine ecosystems. Direct impacts of fishing can result in reduced fish biomass, while indirect impacts include secondary effects on species interactions, habitat alteration/damage, marine biodiversity, and economic impacts. Specific concerns include targeted fishing efforts on particular fish species; focused fishing during spawning aggregations; injury to corals and other organisms by lost and discarded fishing gear; and discarded fishing bycatch.

Pollutant Discharge

Discharge of pollutants from sources inside and outside the sanctuary may have potentially detrimental effects on sanctuary resources. The quality of coastal waters of the northern Gulf of Mexico is in decline due to pollutants associated with the discharge of major river systems (such as the Mississippi and Atchafalaya) and general coastal runoff throughout the region. Predominant current patterns direct much of this water away from FGBNMS, but minor changes in circulation patterns could bring contaminated water to the sanctuary.

Many vessels enter the sanctuary for diving, fishing and research. Pollution concerns from visiting and transiting vessels include exhaust, oil spills, fuel spills, human waste, and bilge discharge from fishing vessels. The discharge of untreated sewage from vessels is not allowed within the sanctuary. However, discharge from a U.S. Coast Guard approved marine sanitation device is allowed. Other discharges from vessels or oil and gas platforms include "graywater" from showers and galleys, debris from maintenance operations, and incidental release of petrochemicals from engine use.

Visitor Use

The primary visitors to FGBNMS are recreational SCUBA divers and recreational fishers. Although the precise status and trends of visitor use in the sanctuary are not known, visitation by scuba divers and fishers is estimated to be relatively low compared to other sanctuaries. This is primarily due to the distance of the banks from shore and possibly a lack of public awareness about the sanctuary. However, observations from sanctuary staff, long-time users of the sanctuary, and others suggest that the level of fishing activity has been increasing in recent years. In addition, the sanctuary is becoming internationally known as a prime dive destination.

As interest and use in the sanctuary increases, there will potentially be conflicts among users arising from competing objectives. As an example, recreational fishers and dive charters may compete for use of the same reef areas because both of these users target the same types of large fish. In addition, vessel operations in an area where diving is occurring can pose a potential safety risk. Although, this risk may be remedied through adherence to dive flag requirements. Further, increased visitation will increase demand for mooring buoys. These combined pressures are an important management priority in order to minimize user conflict, promote safe practices, and protect sanctuary resources.

Operations and Administration

As sanctuaries update and revise management plans, they identify and evaluate needs for more effective management. Additional staffing and infrastructure resources are required to meet the expanded public demands and expectations raised by the process and to respond to legal mandates and policies. Strengthening the sanctuary's base-level staffing, facilities infrastructure and program support to effectively meet the basic needs of sanctuary management is one of the priorities of this management plan.

Description of Proposed Action and Alternatives

As discussed in the Need for Action, awareness of new issues affecting sanctuary management and the fulfillment of many of the prior plan's objectives necessitated the revision to the management plan. This chapter describes the two alternatives for action being considered by NOAA: Alternative 1, leaving the current management plan and regulations in place (No Action); and Alternative 2, revising the management plan and regulations to address the changes described above (Proposed Action). This document presents the programmatic environmental assessment (PEA) that provides the general analyses to inform the decision of approving the resulting draft management plan. It also establishes that as individual actions become ripe for decision, alternatives will be evaluated under the National Environmental Policy Act (NEPA) to meet the broader goals outlined in this draft management plan.

2.1 Alternative 1 – No Action

Under the No Action alternative, NOAA would neither update the FGBNMS management plan nor revise the sanctuary regulations. The current situation described below would continue. This alternative would maintain the 1991 management plan despite its outdated format and content, inclusion of completed tasks, and the nominal list of goals and objectives. Management actions described in the existing management plan, including educational and research activities and enforcement actions, would continue.

2.2 Alternative 2 – Proposed Action

Under the Proposed Action, NOAA would revise the FGBNMS management plan, including updating the sanctuary mission, goals and objectives; removing completed tasks and incorporating new and planned management strategies and activities (Chapter 3); laying out performance measures to better evaluate the effectiveness of sanctuary management; and laying the groundwork for potential future regulatory actions to address high priority issues.

The management plan is comprised of several action plans that identify a series of steps to address priority issues in the sanctuary over the next five years. These plans take on two different forms – issue-driven and program-driven. Issue-driven action plans focus on a particular concern, such as reducing conflicts among sanctuary visitors. Program-driven action plans are related directly to program areas of FGBNMS, such as research or education, and cross through the issue areas. Through public scoping and consultation with the sanctuary advisory council, six categories (as described in the Need for Action chapter) were selected as the top priority issues for the sanctuary to address during the management plan revision: boundary expansion, education and outreach, enforcement, fishing impacts, pollution discharge, and visitor use. Subcommittees were formed including members from the sanctuary advisory council and FGBNMS staff for each issue area. Additional issues, such as administration and performance evaluation, were addressed primarily by sanctuary staff. Over several years, the issues were examined through subcommittee meetings and public workshops. As a result, some issues were repackaged or incorporated into other issue areas. The following list represents the final set of action plans contained in the draft management plan, with the corresponding section of the DMP in parentheses:

- Sanctuary Expansion Action Plan (SEAP) (Section 3.2)
- Education and Outreach Action Plan (EOAP) (Section 3.3)
- Research and Monitoring Action Plan (RMAP) (Section 3.4)
- Resource Protection Action Plan (RPAP) (Section 3.5)
- Visitor Use Action Plan (VUAP) (Section 3.6)
- Operations and Administration Action Plan (OAAP) (Section 3.7).

The action plan strategies and activities directly relate to the attainment of the revised goals and objectives of the sanctuary. Following is a discussion of each of the six action plans, including five specific regulatory changes in the resource protection and visitor use action plans. NOAA proposes to amend the regulations implementing FGBNMS to improve vessel and user safety, protect sanctuary resources and NOAA property from user impacts, update pollution discharge language, and make minor technical corrections.

Sanctuary Expansion Action Plan (SEAP)

The SEAP contains one strategy to evaluate potential sanctuary expansion, to incorporate selected reefs and banks in the northwestern Gulf of Mexico for long-term protection and management by the ONMS. The evaluation process includes the development of the appropriate environmental review and public involvement under the requirements of the NEPA and NMSA.

The purpose of the SEAP is linked to FGBNMS Goal 6.

Action Plan	Purpose	FGBNMS Goal & Objective
Sanctuary Expansion	Protect and manage additional sensitive habitats in the northwestern Gulf of Mexico, allowing for the protection of unique geological and biological features of the region that may be ecologically linked to one another	<i>Goal 6:</i> Promote ecosystem-based management of the FGBNMS regional environment. <i>Objective 6C:</i> Evaluate and implement management actions that enhance ecosystem-based management.

Education and Outreach Action Plan (EOAP)

The EOAP contains four strategies and associated activities that focus on developing programs to address specific management needs and reach target audiences; increasing general public awareness and knowledge of the sanctuary; building internal processes and capabilities; and cultivating relationships and networks with appropriate partners and media contacts.

The purpose of the EOAP is linked to FGBNMS Goal 3.

Action Plan	Purpose	FGBNMS Goal & Objective
Education and Outreach	Use education and outreach to enhance effective management of the sanctuary by cultivating a knowledgeable public that progresses from simple awareness to active stewardship of FGBNMS and the regional marine environment.	<i>Goal 3:</i> Enhance and foster public awareness, understanding, appreciation, and stewardship of FGBNMS and the regional marine environment.

Research and Monitoring Action Plan (RMAP)

The RMAP has five strategies and associated activities to guide research and monitoring efforts including: investigating ecosystem processes; assessing and characterizing sanctuary resources; maintaining and enhancing monitoring programs; implementing a process to evaluate impacts of fishing and diving; identifying and evaluating ongoing and potential threats to sanctuary resources; and developing partnerships to enhance sanctuary research and monitoring programs.

The purpose of the RMAP is linked to FGBNMS Goals 1, 2, and 6.

Action Plan	Purpose	FGBNMS Goal & Objective
Research and Monitoring	Provide a guide for research activities at FGBNMS and throughout the region that will inform management and protection of sanctuary resources, as well as the reefs and banks of the northwestern Gulf of Mexico that are ecologically connected to the sanctuary.	<p><i>Goal 1)</i> Protect, maintain, and where appropriate, restore and enhance the resources and qualities of FGBNMS and the ecosystem that supports it.</p> <p><i>Goal 2)</i> Support, promote, and coordinate characterization, research, and monitoring of FGBNMS and the regional environment to inform conservation and protection.</p> <p><i>Goal 6)</i> Promote ecosystem-based management of the FGBNMS regional environment.</p>

Resource Protection Action Plan (RPAP)

The RPAP has two strategies and associated activities to protect sanctuary resources from various threats and address the enforcement needs of the sanctuary, including two specific regulatory changes to enhance the quality of the FGBNMS ecosystem. In particular, the RPAP addresses law enforcement for and impacts from pollutant discharge, shipping, fishing and diving activities. The action plan includes activities to incorporate surveillance and enforcement into the mission plan for the R/V *Manta*, develop a process for voluntary incident reporting, and improve inter-agency coordination with federal and state enforcement agencies.

The two regulatory changes are proposed in the RPAP:

- RPAP Activity 2.2 proposes to increase protection to rays and whale sharks from physical harm by adding a prohibition in the FGBNMS regulations on attracting, touching, or disturbing these animals.
- RPAP Activity 2.5 proposes to update the FGBNMS discharge regulations to:
 - Clarify that only discharges of clean water incidental to vessel operations and clean effluent from an operable Type I and II marine sanitation device (MSD) are allowed;
 - Require that vessel operators lock all MSDs in a manner that prevents discharge or deposit of untreated sewage;
 - Clarify that general discharge prohibition applies to discharges and deposits made from within or into the sanctuary;
 - Clarify that the exception to the discharge prohibition for fish, fish parts and chumming materials applies only to discharges made during the conduct of lawful fishing within the sanctuary;
 - Eliminate the exception that allows for the discharge of biodegradable effluents in the sanctuary;
 - Eliminate the phrase “routine vessel operations” and clarify which specific types of discharges are allowed in this exception.

The purpose of the RPAP is linked to FGBNMS Goal 1.

Action Plan	Purpose	FGBNMS Goal & Objective
Resource Protection	Improve sanctuary resource and ecosystem protection.	<i>Goal 1:</i> Protect, maintain and, where appropriate, restore and enhance the resources and qualities of Flower Garden Banks National Marine Sanctuary and the ecosystem that supports it.

Visitor Use Action Plan (VUAP)

The VUAP has three strategies and associated activities to foster safe and compatible human uses, including improving information on visitor use, reducing user conflict between vessels and divers, and protecting NOAA property. To help carry out these activities, a specific regulatory change is proposed in the VUAP:

- to add the requirement for vessels with passengers engaged in the activity of diving to use the “alpha” dive flag while divers are in the water.

The purpose of the VUAP is linked to FGBNMS Goal 4.

Action Plan	Purpose	FGBNMS Goal & Objective
Visitor Use	Promote multiple uses of the sanctuary compatible with resource protection and protect NOAA property.	<i>Goal 4:</i> Manage and facilitate multiple sustainable uses of FGBNMS compatible with the primary purpose of resource protection.

Operations and Administration Action Plan (OA)

The OAAP provides recommendations to strengthen the sanctuary’s base-level staffing, facilities, infrastructure and program support to effectively meet the basic needs of sanctuary management. Emphasis is placed on the human and physical infrastructure of the sanctuary.

The purpose of the OAAP supports the attainment of all goals of the sanctuary.

Action Plan	Purpose	FGBNMS Goal & Objective
Operations and Administration	Ensure the administrative, operational, and financial capacities of the sanctuary are adequate to effectively implement the goals and objectives of the sanctuary.	<i>All goals</i>

Affected Environment

The description of the affected environment comes from the Sanctuary Setting of the draft revised management plan (Chapter 2).

3.1 *Northwestern Gulf of Mexico*

The Flower Garden and Stetson Banks are only three among dozens of reefs and banks scattered along the edge of the continental shelf of the northwest Gulf of Mexico (Figure 2). All of these banks are part of a regional ecosystem heavily influenced by current patterns within the Gulf (Figure 3). Inflows from the large watershed that drains two-thirds of the continental United States also play a significant role in the health of this region.

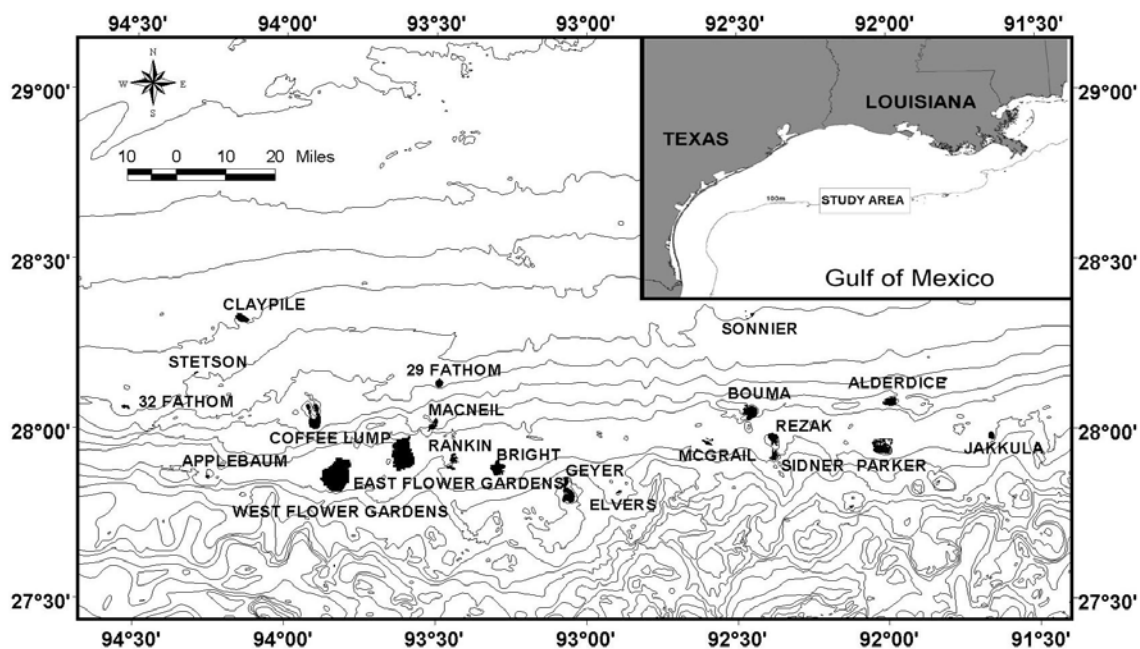


Figure 2: Selected reefs and banks of the northwestern Gulf of Mexico

Currents

From the south, the Gulf of Mexico is fed by the Yucatan Current, a current of warm water from the Caribbean that enters the Gulf between Mexico's Yucatan Peninsula and Cuba. The deeper water flows up the middle of the sea, forming the Gulf Loop Current, which curves east and south along Florida's coast and exits through the Straits of Florida.

The Gulf Loop Current is variable, sometimes barely entering the Gulf before turning, while at other times it travels almost to Louisiana's coast before swinging toward Florida. Simultaneously, portions of the loop often break away from the main current and form circular eddies that move westward, affecting the Flower Garden, Stetson and other banks to the west. The influx of water to the Gulf brings with it animal larvae, plant spores and other imports from the south, and accounts for

the many Caribbean species found in the northern Gulf of Mexico. During its progress, the loop current also picks up similar 'passengers' from the northern Gulf to deliver along its route to the northern Caribbean and western Atlantic.

Meanwhile, the shelf waters of the southern Gulf tend to travel northward, following the Mexico and Texas coastlines before turning east. These wind driven currents may also cross over the Flower Garden, Stetson and other banks and add to the Caribbean influence in the region.

Fresh water from rivers emptying into the northern Gulf of Mexico (Mississippi, Atchafalaya, Calcasieu, Sabine, Brazos, and others) generally flows west and south along the Louisiana and Texas coasts. As these waters move, they mix with nearshore waters of the continental shelf and are also forced offshore as they encounter northward flows along the Texas coast. At times, exceptionally high flow rates can extend the influence of fresh water quite far offshore in the northwestern Gulf.

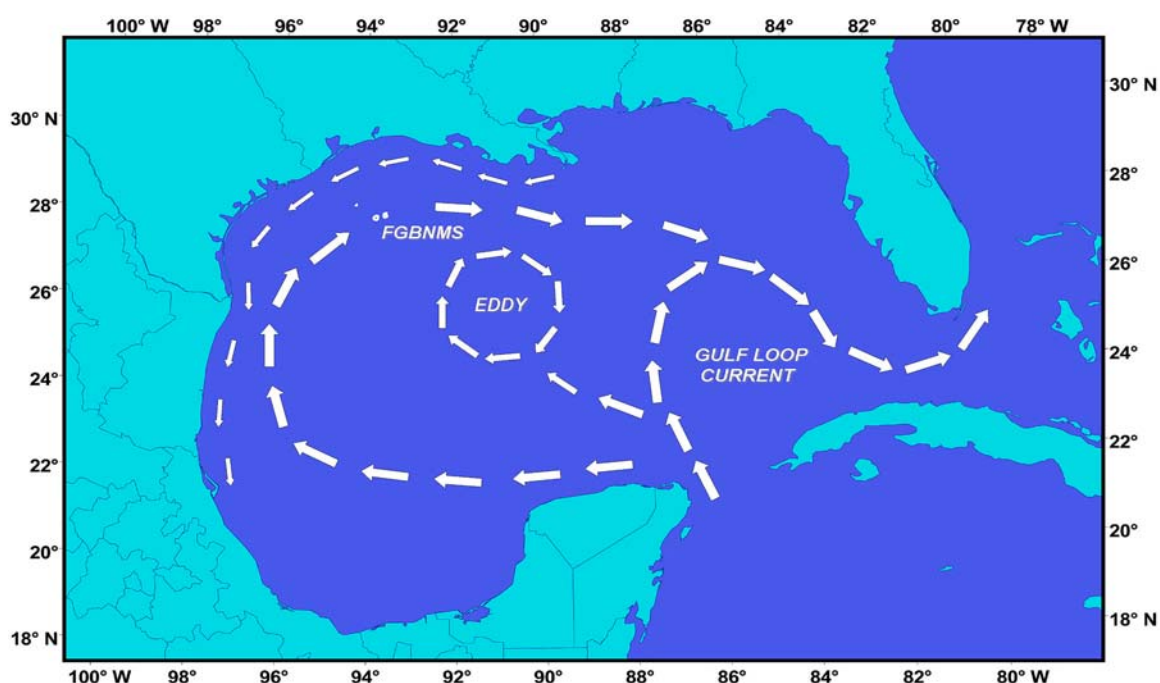


Figure 3: Currents in the Gulf of Mexico

Watershed

From the north, the Gulf of Mexico is fed by multiple rivers that drain the interior of North America. The most significant of these is the Mississippi River. These rivers bring with them all of the runoff accumulated from urban, suburban, and rural areas and wildlands along their routes. Before it reaches the Gulf, this replenishing source of water is partially depleted by extractions for municipal, industrial and agricultural consumption, thus reducing freshwater inflows that sustain the estuaries. When healthy, the estuaries filter sediments and pollutants from the water, export organic material for the food chain in nearshore areas, and provide nursery areas for many species, some of which later move offshore to the system of banks along the continental shelf.

Connectivity

Scientists have long been aware that water circulation connects the dozens of banks along the continental shelf in the northern Gulf of Mexico. Recent explorations, however, have demonstrated that there may be much more physical connection than previously believed. Technological advances have allowed the creation of high resolution maps that reveal systems of low relief geological features (such as rock outcrops) between many reefs and banks in this area. These features may allow much more direct interaction between the banks than previously thought. As we build upon the knowledge base established by the discoveries to date, we may discover that these interactions play a crucial role in maintaining the health of the sanctuary's living marine resources.

3.2 Institutional Setting

In addition to the protection and comprehensive management afforded to the sanctuary by the National Marine Sanctuaries Act (NMSA) as described in the Purpose and Need for Action chapter (Chapter 1), the management of FGBNMS occurs in coordination with several other federal agencies and the statutes under their jurisdiction. The Minerals Management Service (MMS, recently changed to BOEMRE) has historically protected topographic features, including the Flower Garden Banks, through stipulations in leases that prevent drilling in sensitive areas, called No Activity Zones (NAZs). The National Oceanic and Atmospheric Administration (NOAA) and the Gulf of Mexico Fishery Management Council (GMFMC or Gulf Council) have designated many of these same topographic features as Habitat Areas of Particular Concern (HAPCs), which may limit the types of fishing activities that can occur in the area. NOAA Fisheries also manages endangered and threatened species through the Endangered Species Act (ESA) and protected marine mammals through the Marine Mammal Protection Act (MMPA). In addition, the Environmental Protection Agency (EPA) is responsible for protecting the quality of the nation's waterways through the Clean Water Act (CWA).

The Minerals Management Service (MMS or BOEMRE) manages oil, gas, and mineral exploration and development through the Outer Continental Shelf Lands Act (OCSLA; 43 U.S.C. 1331 et seq., 31 U.S.C. §9701). This law authorizes the Secretary of the Interior to prescribe rules and regulations to administer leasing of the Outer Continental Shelf (OCS). Such rules and regulations will apply to all operations conducted under a lease.

The Gulf of Mexico Fishery Management Council is one of eight regional fishery management councils that were established by the Fishery Conservation and Management Act in 1976 (now called the Magnuson-Stevens Fishery Conservation and Management Act; 16 U.S.C. §§1801-1884). The Gulf Council prepares fishery management plans (FMPs) to manage fishery resources in the Exclusive Economic Zone (EEZ) of the Gulf of Mexico, the area from state waters (3 nautical miles) out to the 200 nautical mile limit. As required by the Magnuson-Stevens Act, the Gulf Council has identified essential fish habitat (EFH) in the Gulf of Mexico, and has established a number of habitat areas of particular concern (HAPC), including the East and West Flower Garden and Stetson Banks.

The Endangered Species Act (ESA; 16 U.S.C. 1531) protects animals and plants threatened with extinction. Implementation of the ESA is the responsibility of the U.S. Fish and Wildlife Service (terrestrial and freshwater species) and NOAA Fisheries (marine species). ESA-listed species that

regularly occur in the vicinity of FGBNMS include loggerhead and hawksbill sea turtles, and leatherback turtles have also been observed. It is also possible that sperm and fin whales are present in this area.

Under the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1361), the Secretary of Commerce (authority delegated to NOAA Fisheries) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). A variety of marine mammals occur in the northern Gulf of Mexico, but most are not common in the vicinity of FGBNMS.

3.3 *East and West Flower Garden Banks*

The Flower Garden Banks are significant among ecosystems in the Gulf of Mexico. They contain the northernmost coral reefs in the continental United States. The nearest neighboring tropical coral reefs are 400 miles (643 km) away in the Bay of Campeche off the Yucatan peninsula of Mexico, while the closest U.S. coral reefs are located 750 miles (1,207 km) southeast in the Florida Keys.

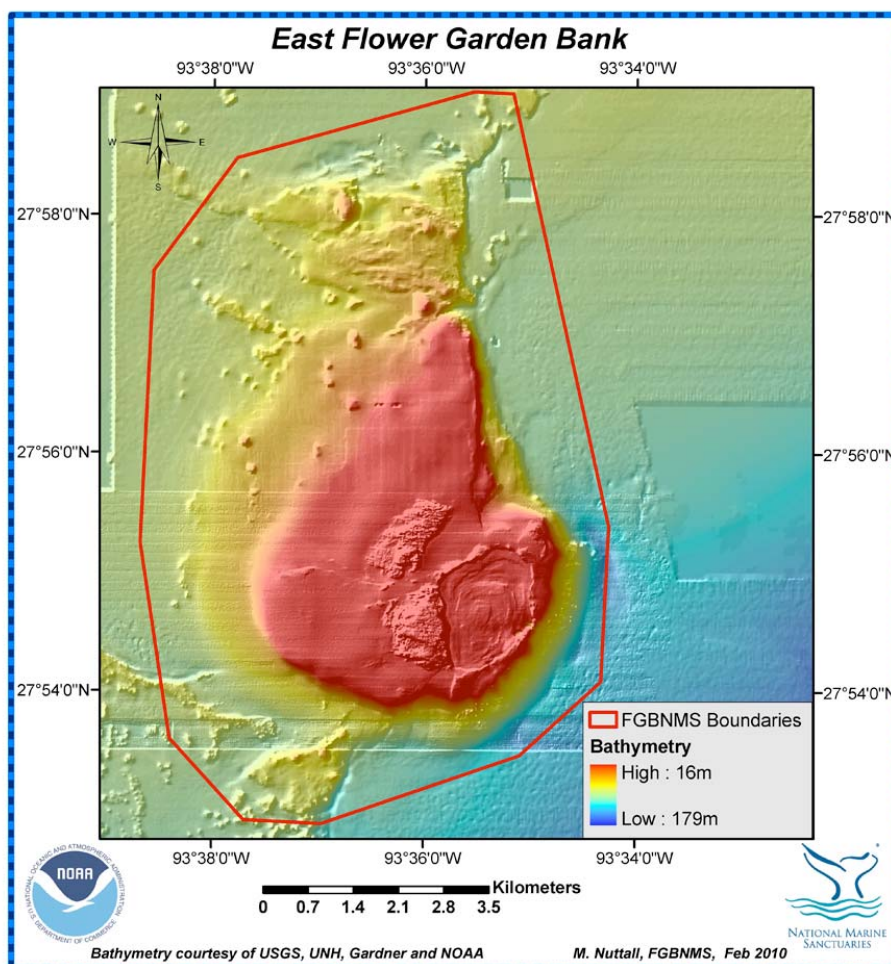


Figure 4: East Flower Garden Bank

East Flower Garden Bank (Figure 4) is a pear-shaped dome, 5.4 by 3.2 miles (8.7 by 5.1 km) in size, capped by 250 acres (1 square km) of coral reef that rise to within 55 feet (17 m) of the surface. West Flower Garden Bank (Figure 5) is an oblong-shaped dome, 6.8 by 5 miles (11 by 8 km) in size that includes 100 acres (0.4 square km) of coral reef area starting 59 feet (18 m) below the surface.

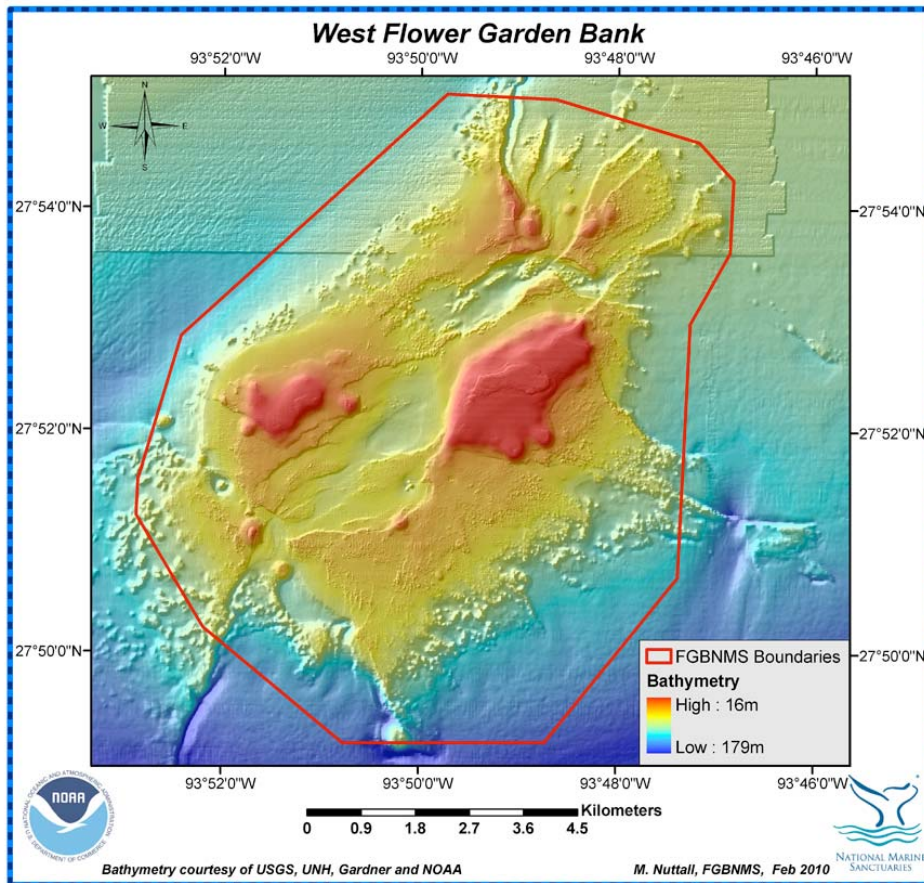


Figure 5: West Flower Garden Bank

Brain and star corals dominate the coral caps of the Flower Garden Banks, with a few coral heads exceeding 20 feet (6 m) in diameter. There are at least 21 species of coral on the coral cap, covering over 50% of the bottom to depths of 100 feet (30 m) and exceeding 70% coral cover in places to at least 130 feet (40 m) (Schmahl et al. 2008, and references therein). Interestingly, the coral caps do not contain some species commonly found elsewhere in the Caribbean, such as many of the branching corals, sea whips or sea fans. In fact, despite the high cover, only about a third of Caribbean hard coral species are found in FGBNMS.

A recent observation of note is the discovery of two live *Acropora palmata* colonies, one each at East and West Flower Garden Banks. These coral colonies are some of the deepest on record of this species (Zimmer et al. 2006).

Less well-known is the deepwater habitat of the Flower Garden Banks that makes up over 98% of the area within sanctuary boundaries. Habitats below recreational scuba limits (approximately 120 feet) include algal-sponge zones, "honeycomb" reefs (highly eroded outcroppings), mud flats, mounds, mud volcanoes and at least one brine seep system. Different assemblages of sea life reside in these deeper habitats, including extensive beds of coralline algae pavements and algal nodules, colorful sea fans, sea whips, black corals, deep reef fish, batfish, sea robins, basket starfish and feather stars.

3.4 Stetson Bank

Stetson Bank (Figure 6) is located 70 miles (113 km) south of Galveston, Texas, and 30 miles (48 km) to the northwest of West Flower Garden Bank. Depths at Stetson Bank range from about 55 feet (17 m) to 170 feet (52 m). Environmental conditions at Stetson Bank, which include more extreme fluctuations in temperature and turbidity, do not support the growth of reef forming corals like those found at East and West Flower Garden Banks. Divers have described Stetson as having a "moonscape" appearance, with distinct pinnacles that push out of the seafloor for 1,500 feet (457 m) along the northwest face of the bank. An area referred to as the "flats" stretches out behind the pinnacles region, and is dotted with low relief outcroppings.

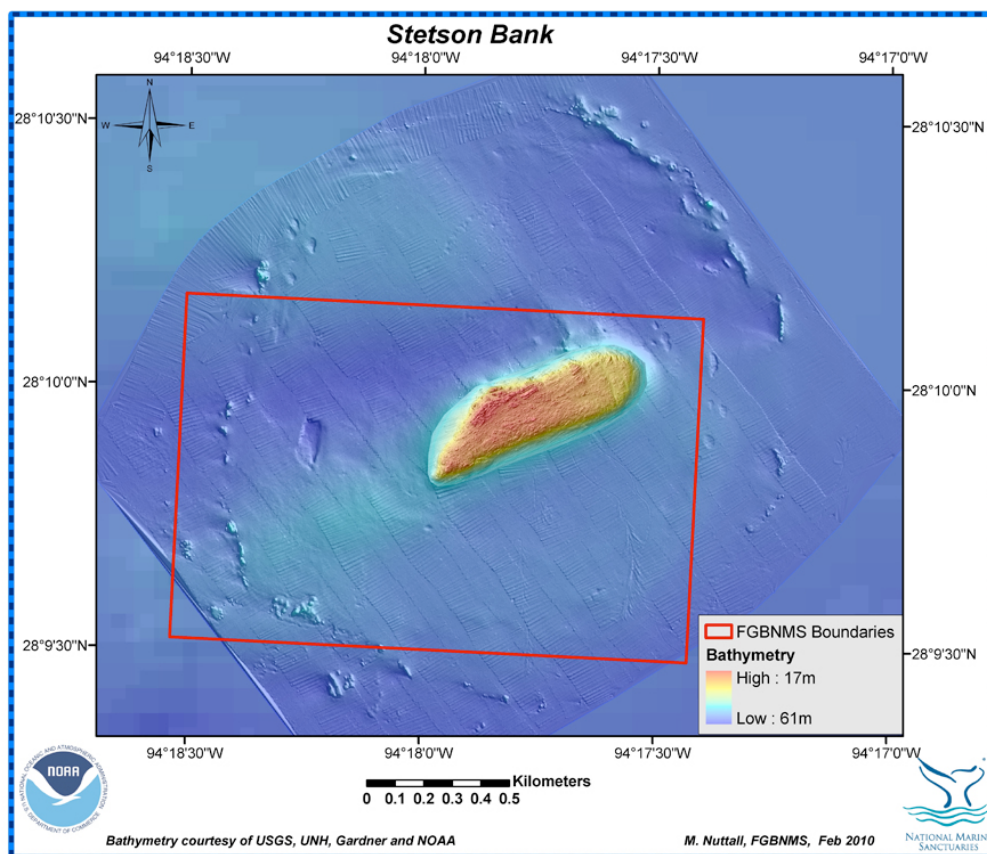


Figure 6: Stetson Bank

The pinnacles of Stetson Bank are dominated by fire coral and sponges, with cover exceeding 30% (Bernhardt 2000). There are at least nine coral species at Stetson Bank, but with the exception of fire coral and a large area of *Madracis decactis*, most colonies are small and sparsely distributed. Algae, sponges and rubble dominate the flats.

A “halo” of claystone outcroppings that ring the main feature of Stetson Bank (Gardner et al. 1998) was identified through surveys after the designation of the sanctuary boundaries. Sponges, gorgonians and black corals dominate this impressive ring of outcroppings at about 165-196 feet (50-60 m). Deep reef fish and invertebrates are prominent inhabitants of the “Stetson Ring.” Much of the feature is outside of the current sanctuary boundaries, an issue that has been identified as a priority for consideration through the management plan review.

3.5 Human Environment

The reefs and banks of the northwestern Gulf of Mexico, including the Flower Garden and Stetson Banks, are utilized by a variety of user groups.

Recreational Diving

Recreational divers constitute the largest user group within FGBNMS. An estimated 2,500–3,000 divers visit the sanctuary each year. Although the sanctuary is often a challenging dive site, recreational divers consistently rate it among the favorite dive sites in North America. The sanctuary is also a popular site for underwater photography. Most divers access the sanctuary on commercial dive charter vessels, but some visit the area in personal boats. Diving is also popular on oil and gas platforms and other artificial reefs in the vicinity.

Fishing

Commercial and recreational fishing are common and economically important activities in the northwestern Gulf of Mexico. Primary species of importance to the fisheries in the Flower Garden Banks area include reef fish within the snapper-grouper complex, including Red Snapper, Vermilion Snapper, deepwater groupers (Yellowedge, Snowy, Speckled Hind, Warsaw) and shallow water groupers (Gag, Scamp, Yellowfin, Yellowmouth, Black, Rock Hind, Red Hind). A number of sharks and other pelagic fish, such as Wahoo, mackerel and Greater Amberjack, and other reef fish, such as Gray Triggerfish, are also sought after species. Conventional hook and line fishing, both recreational and commercial, is allowed within FGBNMS. All other fishing methods, including bottom trawling, trapping and bottom long-lining are prohibited to protect sensitive bottom habitat. Spearfishing is also prohibited. Although fishing pressure is perceived to be moderate, the impact on local fish populations is not well known at this time. The spatial resolution of fishing data is currently not precise enough to quantitatively assess fishing pressure within the sanctuary.

Oil and Gas Activities

The northwestern Gulf of Mexico is home to one of the most active areas of oil and gas exploration and development in the world. Approximately 150 oil and gas platforms are located within 25 miles of the existing boundaries of Flower Garden Banks National Marine Sanctuary. One production platform, located in MMS lease block High Island 389A, is within the boundary of East Flower Garden Bank. Constructed in 1981, prior to sanctuary designation, this platform continues to

facilitate active exploration for and production of oil and gas. The structure itself also serves as an artificial reef, providing habitat for a variety of organisms that live on and around it, as well as an exciting dive opportunity for sanctuary visitors.

Research

FGBNMS has a long history of research and exploration that continues today. Scientists from a variety of universities, research foundations, and government agencies are constantly monitoring and evaluating the fauna and flora of the sanctuary. Many recent studies have focused on the deepwater areas surrounding and between the various reefs and banks, utilizing remotely operated vehicles (ROV) and other technologies. Because of the remote location, the coral reefs of the sanctuary have remained relatively buffered from problems that plague many other reefs in the world and have become a benchmark for evaluating the health of other reef systems.

Education and Outreach

As the only coral reef ecosystem in the northwestern Gulf of Mexico, Flower Garden Banks National Marine Sanctuary is a valuable experiential learning site for educational programming. Instead of just learning about coral reefs, program participants can experience them first-hand, thus adding another dimension to their appreciation of this resource. For example, FGBNMS staff organizes workshops that train between 500 and 1,000 teachers every year.

Environmental Consequences

This chapter examines the environmental consequences for the two alternatives addressed in this PEA. Actions taken to manage the sanctuary as proposed in the draft management plan, considered together with the stressors facing sanctuary resources, generally result in a cumulative beneficial impact to these resources, although the impact does not meet the threshold for significance under the NEPA.

4.1 Alternative 1: No Action

Taking no action would result in no change of the current management regime of the sanctuary. The current management plan would remain in effect and the regulations would remain unchanged. The environmental impact statement regarding the 1991 management plan contains a full analysis of the environmental impacts of that plan. Any future decisions made under the existing management regime would be reviewed for their NEPA compliance under either the 1991 environmental impact statement or under a separate NEPA analysis before a decision would be made.

As compared to Alternative 2, taking no action could result in negative impacts to the natural and human environments since the resource protection activities mentioned in the proposed action would not take place. For instance, rays and Whale Sharks would not be afforded additional protections from adverse human interactions (RPAP Activity 2.5), and improperly treated discharge would continue to be allowed (RPAP Activity 2.2). Taken alone, these activities do not rise to the level of a significant impact under the NEPA, but support the cumulative benefits of the draft management plan.

4.2 Alternative 2: Proposed Action

The proposed action would revise the FGBNMS management plan to reflect the six action plans, which include five substantive changes to the existing regulations. Technical corrections to the regulations would also be proposed.

It is important to note that the revised plan itself does not specifically enable any of the activities listed in the action plans to occur; activities could take place in the sanctuary under the current management plan without this revision (see Alternative 1: No Action). However, the revised management plan would update existing non-regulatory programs, call for new programs to be developed, and include a process to consider future regulatory actions². Taken together, NOAA expects that the strategies and activities included in the draft plan would have some positive environmental effects by increasing protection of resources both directly and through interagency cooperation in research and management, and by reaching more people and expanding the stewardship message of the sanctuary. The potential environmental consequences of the proposed actions are described in more detail below.

Sanctuary Expansion Action Plan

The SEAP considers activities to evaluate the potential expansion of the network of protected areas within the sanctuary by incorporating selected reefs and banks in the northwestern Gulf of Mexico

² If additional regulatory actions were initiated, the appropriate NEPA analysis and formal public input would occur at appropriate times in the future.

for their long-term protection and management. The action plan does not make any determination regarding the analysis of the alternatives for expanding the sanctuary in an effort to enhance ecosystem protection; it lays out the framework for conducting that environmental review pursuant to the NEPA and the NMSA. The development of the action plan is an administrative process that occurs within existing facilities and would not significantly change the use of those facilities or increase traffic. Once the plan is implemented, however, the goal (see FGBNMS Goal 6) is to have beneficial impacts on the natural environment in the region (i.e., habitat, species, ecosystem), which could in turn benefit the human environment (e.g., more pristine dive sites, improved habitats to support fishery species, increased opportunities for research and educational activities). Taken alone, however, the SEAP has little to no potential to meet the NEPA threshold for significance.

Education and Outreach Action Plan

The EOAP considers activities to develop, support and implement education and outreach programs. Proposed activities include, for instance, developing programs to reach previously underserved audiences; creating sanctuary exhibits in aquariums and museums; enhancing K-12 education programs; developing a strong volunteer program; continuing to build a dynamic and up-to-date internet presence; and developing new tool to evaluate effectiveness of efforts. In addition, the education and outreach team will develop a concept and implementation plan for a Flower Garden Banks National Marine Sanctuary visitor center in Galveston, Texas. More details about the proposed visitor center are available in the Operations and Administration Action Plan, since it is primarily a facility consideration at this stage.

The types of activities in this action plan would not significantly change the use of facilities or increase traffic. If any activity is considered under this plan that would change the use of existing facilities or occur outside the facilities in the natural environment, then an environmental review under NEPA will be conducted as appropriate and if necessary, depending on the anticipated impact of the activity. Similarly, if any new infrastructure (e.g., visitor center) is necessary to implement any of the activities contemplated by this plan, an appropriate NEPA review will be conducted. Taken alone, the EOAP has little to no potential to meet the NEPA threshold for significance. Regardless, implementation of the activities proposed in the EOAP is expected to support FGBNMS Goal 3 as to improve stewardship towards the sanctuary, which could lead to beneficial impacts on the quality of the natural and human environments associated with the sanctuary.

Research and Monitoring Action Plan

The RMAP would provide a guide for research and monitoring activities at FGBNMS and throughout the region that would inform management and protection of the sanctuary resources, as well as the reefs and banks of the northwestern Gulf of Mexico that are ecologically-linked to the sanctuary. The RMAP could result in overall, long-term beneficial impacts to the natural environment by addressing the need for information on ecosystem processes, sanctuary resources, impacts of diving and fishing on the sanctuary, and other potential threats to the sanctuary, including marine debris, invasive species, natural and human-induced events, and climate change. The types of activities considered under this plan include developing research and monitoring programs, collaborating with partners, conducting scientific analyses, and establishing a public process to evaluate the establishment of a research-only area within FGBNMS. These activities would occur within existing facilities and would not significantly change the use of those facilities or increase traffic. An environmental review under NEPA will be conducted as appropriate and if necessary for

any activity considered under this plan occurring in the natural environment (e.g., collection of biological samples or deep coring). The expectation is that the overall benefits gained by natural environment due to these activities would have net beneficial impacts on the human environment as well. However, the RMAP has little to no potential to meet the NEPA threshold for significance when considered alone.

Resource Protection Action Plan

The RPAP could result in beneficial impacts to the environment by addressing potential threats to sanctuary resources and improving enforcement capability. The action plan includes the following activities: incorporate surveillance and enforcement into the mission plan for the R/V *Manta*; develop a process for voluntary incident reporting; improve coordination with federal and state enforcement agencies; evaluate the need for additional protection measures from inappropriate fishing gear; and revise the pollutant spill contingency plan. These types of activities would occur within existing facilities and would not significantly change the use of those facilities or increase traffic. When considered alone, the RPAP has little to no potential to meet the NEPA threshold for significance. The implementation of this action plan may result in NOAA considering actions that require further analysis and public review under NEPA and other statutes, to be conducted at a later date. For example,

In addition activities described above, this action plan includes two amendments to the FGBNMS regulations to update the prohibition on discharges from marine sanitation devices (MSDs) and other sources, and to add a prohibition on attracting, touching or disturbing rays and whale sharks. Below is a discussion of the potential environmental consequences of these two regulatory changes.

Regulation to protect rays and Whale Sharks

RPAP Activity 2.2 proposes to increase protection to rays and Whale Sharks from physical harm by adding a prohibition on attracting, touching, or disturbing these animals. Approximately 20 species of sharks and rays have been documented at the Flower Garden and Stetson Banks, some seasonal, others year-round. Whale Sharks and rays are transient creatures and migrate between areas for feeding and mating. During the winter months, Spotted Eagle Rays (*Aetobatus narinari*) are common visitors to all three banks. Summer months usually bring Whale Sharks (*Rhincodon typus*) to the area. These filter-feeding creatures can reach over 30 feet (9 meters) in length. Manta Rays (*Manta birostris*) and the very similar-looking mobula rays (*Mobula* spp.) are regular visitors to the sanctuary throughout the year. At least 58 different individual Manta Rays have been documented and identified by distinctive markings on their undersides. Recent acoustic tracking of the Manta Rays has revealed that they are moving between the three banks of the sanctuary.

Divers can physically harm rays and Whale Sharks by attracting, touching, riding or pursuing the animals, which can then expose the animals to other potential injuries. In particular, people can cause injury to the skin of an animal by merely touching it. The animals may actively avoid diver interactions by changing direction or diving, and may exhibit stress behavior such as violent shuddering. When these types of responses occur, rays and Whale Sharks expend energy that could otherwise be used for feeding and other natural activities.

Whale Sharks and rays are not listed under the Endangered Species Act (ESA) or designated as depleted under the Marine Mammal Protection Act (MMPA), and are therefore not protected from

harassment and injury in the same manner as threatened and endangered species under the ESA or marine mammals under the MMPA. Therefore, NOAA proposes to strengthen the protection of rays and Whale Sharks from physical harm by developing regulations to prohibit attracting, touching, or disturbing the swimming or feeding behaviors of these animals. In this context, NOAA is proposing to define “disturbing” as follows: “Disturb or disturbing a ray or Whale Shark means to, or attempt to, ride, pursue, hunt, restrain, detain (no matter how temporarily), capture, collect, or conduct any other activity that disrupts or has the potential to disrupt any ray or Whale Shark in the sanctuary by, for example, causing or threatening to cause the ray or Whale Shark to shudder or alter one or more of its natural behavioral traits or patterns.” NOAA also proposes to define “attracting” as follows: “Attract or attracting means the conduct of any activity that lures or may lure any animal in the sanctuary by using food, bait, chum, dyes, decoys (e.g., surfboards or body boards used as decoys), acoustics or any other means, except the mere presence of human beings (e.g., swimmers, divers, boaters, kayakers, surfers).” The regulation is intended to reduce human interactions with rays or Whale Sharks.

The proposed regulation would have beneficial impacts to rays and Whale Sharks by reducing physical harm to the animals caused by inappropriate interactions with humans while in FGBNMS. The proposed regulation has no impact to the socioeconomic environment. Divers’ experience of the sanctuary marine environment is not diminished through the inability to attract, touch or alter the behavior of rays and Whale Sharks. Any positive impact, however, is not considered significant under the NEPA framework, since this regulation proposes to eliminate only one threat to these animals and only while the animals are within the boundaries of the sanctuary. When taken into consideration other potential threats, this regulation would not meet the NEPA thresholds for having significant beneficial or negative impacts on the environment.

Regulation to reduce pollutant discharges from marine sanitation devices (MSDs) and other sources
RPAP Activity 2.5 proposes to update the existing FGBNMS discharge regulations. It would clarify that vessel discharges from Type III MSDs are prohibited in the sanctuary and allow discharge of clean effluent in the sanctuary from operable Type I and II MSDs. The regulatory change would also require that vessel operators lock all MSDs in a manner that prevents discharge or deposit of untreated sewage, which also provides a practical compliance element for enforcing this prohibition.

These proposed vessel discharge regulations are consistent with similar regulations recently implemented for other national marine sanctuaries, as well as best management practices of the industry. The current exemption in the FGBNMS regulation for discharging vessel wastes “generated by marine sanitation devices” (§ 922.122(a)(3)(i)(B)) is not intended to allow the discharge of untreated sewage (i.e., discharges from Type III MSDs) into the sanctuary. Type I and Type II MSDs treat sewage, whereas Type III MSDs store waste until it is removed at designated pump-out stations on shore or discharged at sea. Therefore, the proposed modification to the FGBNMS regulations would clarify that only discharges from properly functioning Type I or II MSDs are allowed in the sanctuary.

Further, the proposed requirement that effluent from MSDs be “clean” would replace the requirement that they be “biodegradable.” The term “clean” means not containing detectable levels of harmful matter; and “harmful matter” means any substance, or combination of substances, that because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose a

present or potential threat to sanctuary resources or qualities. In the final rule implementing these changes for other national marine sanctuaries (73 FR 70487), NOAA determined that the use of the term “biodegradable” potentially raises enforcement and compliance issues. It is not a term that has a recognized legal definition and products are labeled “biodegradable” without reference to a fixed set of standards. Defining the terms “clean” and “harmful matter” in FGBNMS regulations facilitates compliance and enforcement by providing vessel operators with a definition of what is prohibited, and focuses on the type of contaminants that pose the greatest threat to water quality.

For consistency and added clarity, NOAA also proposes to replace the exception for “water generated from routine vessel operations” with the requirement that clean deck wash down, clean cooling water, and clean bilge water all be free of detectable levels of “harmful matter” as defined by the regulations. This facilitates compliance by clearly identifying what types of discharges and deposits from routine vessel operations are permitted under the regulations, and focuses on those contaminants that pose the greatest threat to water quality. The requirement also makes the discharge regulations consistent with recent requirements implemented for other national marine sanctuaries.

The revised pollutant discharge regulation would have beneficial impacts to water quality by eliminating harmful discharges of waste into the sanctuary. The proposed regulation would not have negative impacts as it does not require any additional investment in equipment or cost for waste removal for vessel operators. Due to the small size of the sanctuary and far distance from shore, requiring the vessel operators to hold waste from Type III MSDs for discharge beyond sanctuary boundaries is a reasonable alternative to discharging within the sanctuary. Any positive impact on water quality, however, does not meet the NEPA threshold for significance because the regulation limits only a single source of water quality pollution; the action taken in consideration of other water quality issues would not have a significant impact, according to NEPA standards, on any individual or combined resources.

Visitor Use Action Plan

The VUAP considers activities to improve the quality and quantity of visitor information, to reduce potential user conflict by developing dive flag requirements and guidelines for proper use of mooring buoys, and to protect and maintain NOAA property by developing related regulations and a mooring buoy plan. Activities such as developing guidelines, plans, or web-based reporting systems would occur within existing facilities and would not significantly change the use of those facilities or increase traffic. Within the NEPA framework, therefore, these activities would have little to no potential to significantly impact the quality of the human environment. However, when these activities are paired with the proposed regulatory changes discussed below, sanctuary users are expected to benefit from the increased safety standards and improved condition of NOAA property. These changes to the FGBNMS regulations would require the use of dive flags while divers are in the water, require minimum distances and operating speeds for vessels in proximity to dive flags, and protect NOAA property.

Regulations regarding dive flag and vessel operation requirements

VUAP Activity 2.1 proposes to require that all vessels engaged in diving activities in FGBNMS clearly exhibit the blue and white International Code flag “A” (“alpha” dive flag) when divers from that vessel are in the water and remove it once divers exit the water and return on board. Because

the entire sanctuary is within federal waters, use of the “alpha” flag would be consistent with the U.S. Coast Guard requirement. This consistency promotes better enforcement of sanctuary regulations.

Though not significant within the NEPA framework, the proposed regulation would have beneficial impacts on the quality of the human environment by improving safety and reducing user conflict between divers and vessel operators.

Operations and Administration Action Plan

The OAAP would provide the framework for the organizational structure and functions of the sanctuary to address marine resource protection, research and monitoring, and education and outreach. In general, the actions in the OAAP are to strengthen staffing and support capabilities, maintain and develop site infrastructure, and enhance the use of volunteers. Activities such as hiring staff and enhancing operations have little to no potential to significantly affect the quality of the human environment so long as these activities occur within existing facilities. As the development of future infrastructure (e.g., the construction of new or renovation of existing facilities) is considered to meet the goals and objectives of this action plan, the appropriate environmental review of the alternatives under consideration would be conducted before decisions are made.

4.3 Cumulative Effects Analysis and Conclusion

This programmatic environmental assessment analyzes the anticipated administrative and programmatic activities associated with the proposed action (Alternative 2) to revise the FGBNMS management plan and take regulatory actions. Administrative activities conducted within existing facilities, such as consultations, outreach, administrative frameworks, development of plans, and data analysis would have little to no potential to significantly affect the quality of the human environment according to NEPA standards. Activities to manage the sanctuary as proposed in the draft management plan, considered together with the many natural and human-induced stressors to sanctuary resources, generally result in a cumulative beneficial impact to these resources. However, as with the administrative activities, the positive impacts do not meet the NEPA threshold for significance. This is because at a programmatic level, no single activity, when taken in consideration with others, would have significant beneficial or negative impacts on any individual or combined resource.

It is important to note that natural and human-induced stressors may somewhat lower the beneficial effects of implementing the proposed action. Such stressors include, for example: impacts of climate change, such as increased water temperatures and ocean acidification; major natural disasters, such as hurricanes; and major anthropogenic damage, such as oil spills and overfishing. However, the outcome of these external stressors is not expected to be altered significantly by the implementation of the proposed action. Therefore, cumulative impacts of this action are not considered significant under the NEPA.

To the extent that future activities considered under any of the action plans (which range from infrastructure construction, management measures to implement sanctuary expansion, or establishment of an experimental closure to evaluate the impacts of diving and fishing) are conducted in the human environment, a NEPA review to analyze the impacts of alternatives would be conducted.

Therefore, it is anticipated that this programmatic environmental assessment on the draft management plan for FGBNMS would result in a Finding of No Significant Impact. Accordingly, no environmental impact statement was prepared for the purposes of approving the draft management plan. This does not preclude NOAA from analyzing specific activities (as described in the Environmental Consequences section above) under NEPA and analyzing the potential for significant effects of an action and its alternatives in a future environmental assessment or environmental impact statement, as necessary.

References

- Bernhardt, S.P. (2000) Photographic monitoring of benthic biota at Stetson Bank. M.S. Thesis. Texas A&M University, College Station, Texas. 55 pp.
- Davis, D., Banks, S., Birtles, A., Valentine, P., Cuthill, M. (1997) Whale sharks in Ningaloo Marine Park: managing tourism in an Australian marine protected area. *Tourism Management* 18(5):259-271.
- Gardner, J.V., Mayer, L.A., Hughes Clarke, J.E., Kleiner, A. (1998) High-Resolution Multibeam Bathymetry of East and West Flower Gardens and Stetson Banks, Gulf of Mexico. *Gulf of Mexico Science* 23(1):131-143.
- Quiros, A.L. (2007) Tourist compliance to a code of conduct and the resulting effects on whale shark (*Rhincodon typus*) behavior in Donsol, Philippines. *Fisheries Research* 84:102-108.
- Shackley, M. (1998) 'Stingray City' – managing the impact of underwater tourism in the Cayman Islands. *Journal of Sustainable Tourism* 6(4):328-338.
- Schmahl, G.P., Hickerson, E.L., Precht, W.F. (2008) Biology and ecology of coral reefs and coral communities in the Flower Garden Banks region, northwestern Gulf of Mexico. Coral Reefs of the U.S. In Reigl, B.M., Dodge, R.E. (eds.) Coral reefs of the world, Vol 1. Coral reefs of the USA, Springer-Verlag, pp 221-262.
- Zimmer, B., W. Precht, E. Hickerson, and J. Sinclair. 2006. Discovery of *Acropora palmata* at the Flower Garden Banks National Marine Sanctuary, northwestern Gulf of Mexico. Coral Reefs. DOI 10.1007/s00338-005-0054-9.

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